

the organisms were not studied for lack of time. Cures are reported in a number of instances, the largest being of two and a half years' duration. All but two of the patients showed decided benefit, and in these the treatment was discontinued before it could be given a fair trial.

**The Etiology of Epidemic Poliomyelitis.**—E. C. ROSENOW, E. B. TOWNE and G. W. WHEELER (*Jour. Am. Med. Assn.*, 1916, lxvii, 1202) report results of their recent investigations of epidemic poliomyelitis in a preliminary note. They have made a bacteriological study of throats, tonsils, blood, spinal fluid, the central nervous system, and other tissues in cases of acute poliomyelitis in the present epidemic both in Rochester, Minn., and in New York City, with particular reference to the infecting power of the bacteria isolated. They isolated a peculiar polymorphous streptococcus, often in large numbers, from the throat, from material expressed from tonsils, and from abscesses in tonsils of a large series of cases of epidemic poliomyelitis. They also obtained similar organisms from the ventricular fluid after death and from blood during life in one instance but not from the spinal fluid. In twelve consecutive cases of poliomyelitis which came to autopsy in New York, they obtained this same organism from the brain and cord and from the intervertebral ganglia and lymph nodes in some of the cases. This confirmed the results of Mathers in his studies of the brain and cord. The polymorphous streptococcus produces on aërobic blood-agar plates fine, dry, non-adherent, slightly green colonies which may show a hazy zone of hemolysis after forty-eight hours. The cultural characteristics vary with the conditions of artificial growth employed. Involution forms may occur. One of the striking characteristics of this organism appears to be the fact that with changes in its artificial medium it becomes transformed from a relatively large coccus to an extremely minute organism resembling the globoid bodies described by Flexner and Noguchi. After filtration of cultures through Berkfeld N filters a growth can be obtained from the filtrate, and in suitable medium, the large forms may be obtained from this material which originally contained only the small globoid bodies. Paralysis with lesions in the central nervous system has been produced in guinea-pigs, rabbits, dogs, cats, and monkeys by intravenous or intracerebral injection, with this peculiar streptococcus from practically all of the 52 cases of acute poliomyelitis. Furthermore, it has been produced by injecting the emulsions of pus expressed from tonsils, emulsions of extirpated tonsils and emulsions of the brain. It has also followed injection of the primary mixed culture containing chiefly the peculiar streptococcus, and by injection of the pure cultures from throats, from material expressed from tonsils, and from the abscesses in tonsils removed from living patients and necropsy cases. Similar results have been secured from cultures obtained from the brain and cord.

**Lead Poisoning from Projectiles Retained in the Body.**—M. LOEPER and G. VERPY (*Progrès méd.*, 1916, xl, 81) report studies on 16 patients carrying old lead projectiles embedded in their tissues. The authors had observed symptoms which they found difficult to explain, *i. e.*, hypertension, albuminuria and cylindruria, constipation

and colic, and anemia. Suspecting that the patients might be suffering with a latent saturnism, they made chemical examinations of their urines, and in six of the sixteen they demonstrated the presence of lead. The lead was found to the amount of 0.5 to 1 mg. per liter of urine, or an excretion of more than 1 mg. daily. The intestinal and nervous symptoms they could not relieve, but in three cases the albuminuria (0.5, 0.75, and 3 gm. per liter respectively) disappeared completely within two to three weeks after removal of the lead bullet, and lead could no longer be found in the urine. Likewise, they had under observation two patients with anemia (2,800,000 and 3,200,000 red blood cells respectively) in whose erythrocytes basophilic granulation was observed. These patients were also benefited by extraction of lead bullets. The authors believe, therefore, that lead bullets or bits of shrapnel, which are not causing trouble locally, may, nevertheless, be responsible in some cases for toxic effects whose nature should be suspected.

**Experimental Studies in the Etiology of Acute Epidemic Poliomyelitis.**—J. W. NUZUM and M. HERZOG (*Jour. Am. Med. Assn.*, 1916, lxvii, 1205) report bacteriological studies of the recent epidemic of acute poliomyelitis in Chicago. All of their material was obtained from the Cook County Hospital. They have obtained a Gram-positive micrococcus from the tissues of the central nervous system, tonsils, mesenteric lymph glands, and from the cerebrospinal fluid obtained during life. Cultures of this organism, when injected in monkeys, produced the typical clinical and pathological picture of acute poliomyelitis. Definite flaccid paralysis has been produced in dogs and in many young rabbits. The organism grows better aerobically than anaerobically. Anaerobic cultures in fluid mediums were passed through Berkefeld filters V, and inoculations of the filtrate into suitable mediums produced a growth of the larger form of the organism seen in aerobic cultures. In the tissues from the central nervous system of poliomyelitic material preserved in 50 per cent. sterile glycerin, this same micrococcus was alive after a period of thirty-five days, and could be cultivated in pure culture on suitable mediums.

## SURGERY

UNDER THE CHARGE OF

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**The Surgical Treatment of Perforated Ulcer of the Stomach.**—WILENSKY (*Ann. Surg.*, 1916, lxiv, 403), says that the ideal method of operative treatment would comprise the closure of the perforation plus some procedure for the cure of the underlying ulceration. The